



Johnson Matthey
Catalysts

Off-Road Diesel Retrofits and Experience



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ENVIRONMENTAL CATALYSTS AND TECHNOLOGIES



Technologies Available



- **Diesel Oxidation Catalysts**
 - PM -- 20-50% Reduction
 - CO and HC -- >90%
- **Diesel Particulate Filters**
 - PM -- >85% Reduction
 - CO and HC -- >90%
- **All DPF systems are delivered with a back pressure monitoring device, CRTdm**

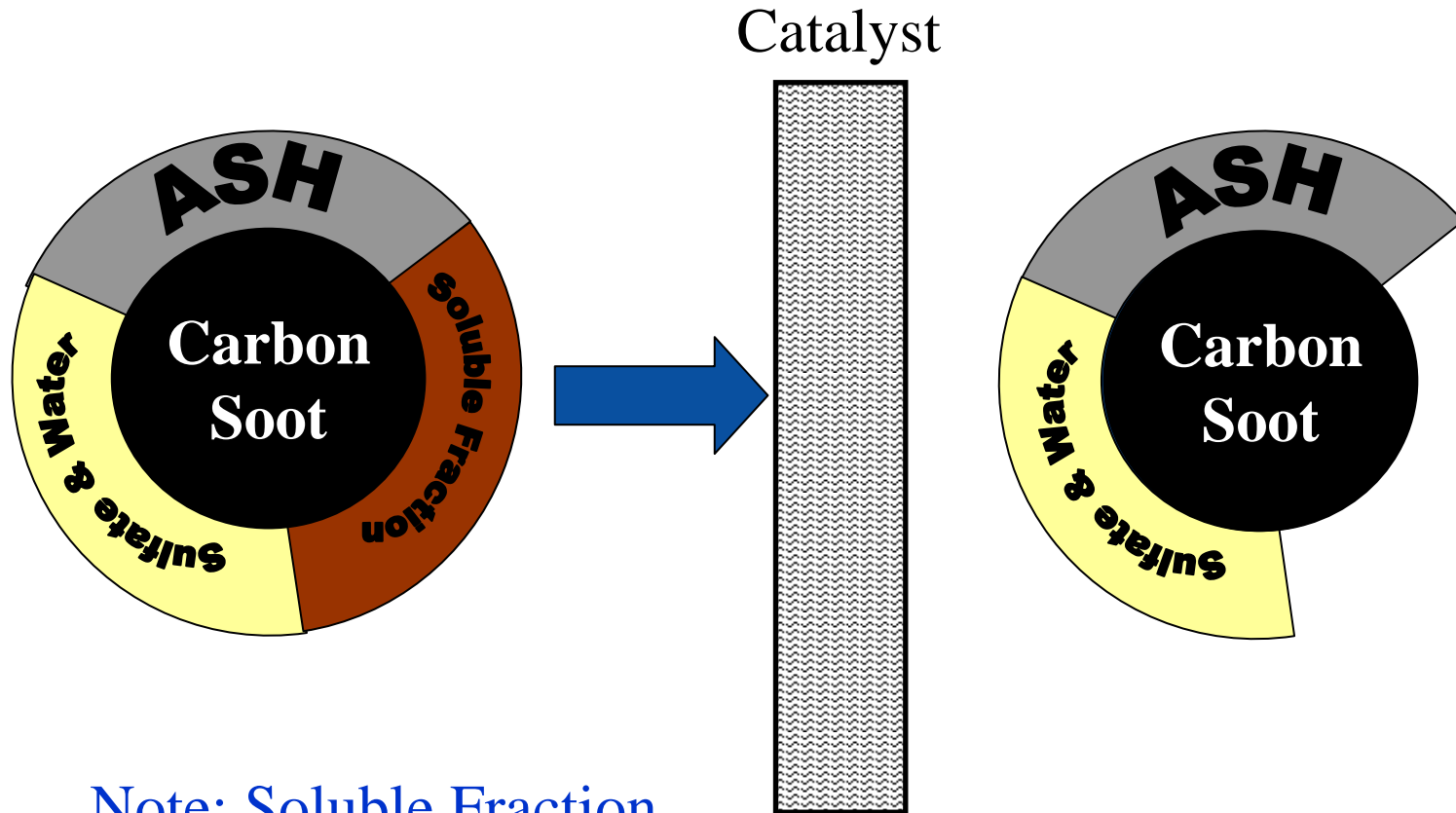


Diesel Oxidation Catalysts For CO & HC Control

- Oxidation Catalyst Control Capabilities
 - PM -- 20-50% Reduction
 - CO and HC -- >50%
- Application Requirements
 - Can work with high sulfur fuel (up to 500 ppm)
 - Benefits from low S fuel (low sulfate make)
 - Proven low-cost technology
 - Combined catalyst and muffler to provide sound attenuation and emission benefit
 - Applicable to Tier 1 and newer engines
 - No required maintenance
 - Variety of sizes and shapes for different applications



Particulate Matter Oxidation



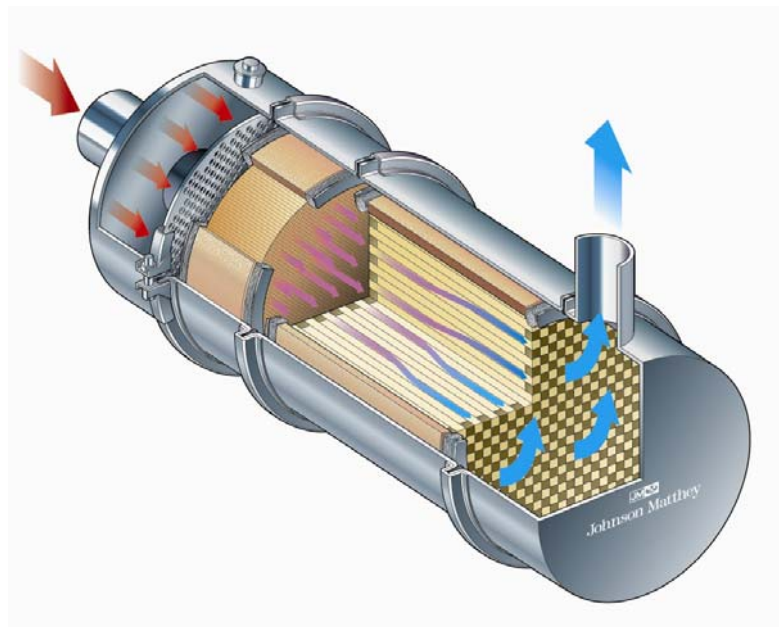
Note: Soluble Fraction,
Sulfates and Water are in
Vapor form.



CRT® and CCRT® Diesel Particulate Filters for PM Control



- **Patented System combining Oxidation Catalyst & Filter**
- **Engineered as a totally passive**
- **Requires the use of Ultra Low Sulfur fuel and back pressure monitor**
- **EPA and CARB on-road verified for 1994-2006 Engines**



CRT® & CCRT®

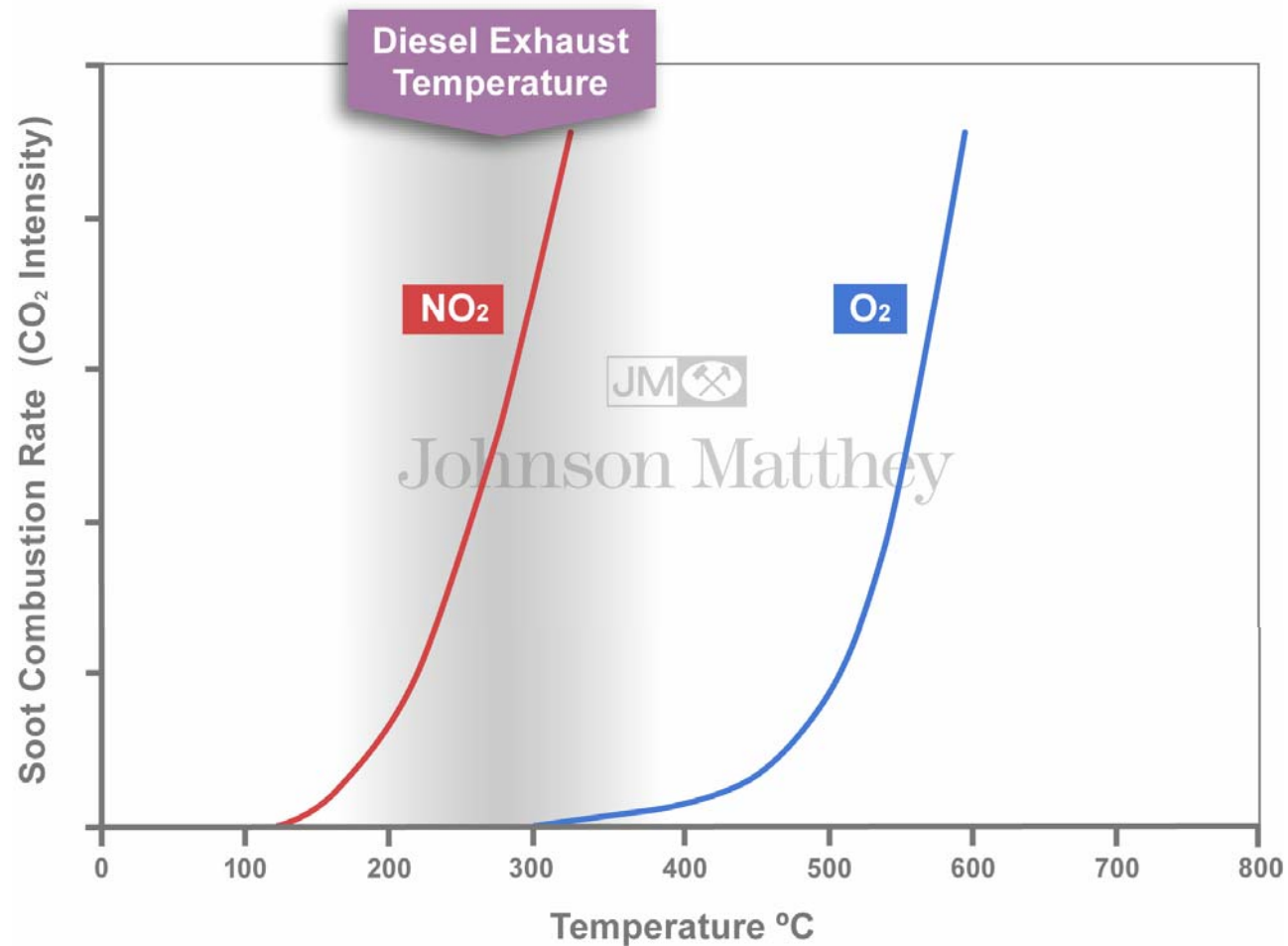
>85% PM Reduction

>85% HC Reduction

>85% CO Reduction



Soot Combustion



CRT® Theory of Operation



<http://ect.jmcatalysts.com/technologies-diesel-crt.htm>

 **Continuously Regenerating Trap**

Please select a page from the list below.



- Unlike DOC's, Diesel Particulate Filters require upfront analysis to properly apply the technology
- Datalogging provides important exhaust temperature information as well as typical duty cycle
 - The CRT® requires a minimum temperature of 240°C for 40% of the time
 - The CCRT® requires a minimum temperature of 200°C for 40% of the time
- Maintenance requirements
 - Highly durable, last the useful life of the vehicle
 - Periodic filter cleaning is required, recommend once a year
 - Modular design allows for easy filter servicing



CRT Filter from Bus 6019



Filter Inlet



Filter Outlet



CRT Filter from Bus 6019



CRT Inlet Section



CRT Outlet Section



Application Experience



- Vibrations on some machines are severe
 - Tracked machines
 - Compactors
 - Special tools
- More liable to impacts and collisions
 - Quarrying
 - Mining
- Packaging within engine compartment preferred
 - Good visibility
 - Protection from damage



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[Thank you for your time!](#)

